

Project standards in utility sector

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Abstract: The energy industry has changed dramatically in recent years. So far there were heterogeneous structures in place. Now this industry is looking for standardized solutions. One of these solutions is presented here: Project Management Standards.

1. Introduction

Standards for project management are used to draw up basic processes and procedures which support the successful execution of projects. To this effect, project phases, project management processes and responsibilities are generically defined and shown along the lines of a process. The described process steps define the requirements for the planning, execution, control and monitoring of projects, starting with project development and continuing through to project completion.

Higher-level basics are stipulated by international project frameworks such as PMI (1) or Prince 2. This document briefly outlines the main contents of a project management standard and attempts to critically assess the advantages and disadvantages involved.

2. Scope of standards

The introduction of a project management standard is intended to define the associated project types and categories. The most important and relevant terms are outlined below.

3. Terms, abbreviations

Project:

A project is subject to a limited timescale and aims at creating a unique product, service or result. In its entirety, it is essentially determined by the uniqueness of the conditions involved, e.g. targets, conditions with regard to time, finances, staffing or other aspects, scope and organisation.

Project type:

A project type covers a range of projects. The project type is initially determined within the context of tailoring. At least one project type variant is offered for each project type and mandatory modules are stipulated for how to proceed. Various project features which enable optional procedural modules to be selected are allocated to one particular project type.

Project category:

The project category serves to distinguish projects in terms of complexity. Using various criteria, categories TOP, A, B and C are established. TOP projects are those with the highest level of complexity and C projects those with the lowest level of complexity. The category also indicates the minimum qualifications which a project manager or employee must have in line with the project category.

Technology (project type):

Projects can differ, for example, in terms of technology (technology & innovation projects, new-build-projects) so that the generic project management system is also focused in line with the requirements of different project types.

Technology & innovation projects:

Technology & innovation (research and development) projects contribute towards gaining knowledge about new or improved technologies or products.

Milestone:

The PMI standards define a milestone as a “significant point or event in the project”.

Gate:

Gates are special milestones for project phases. They separate individual phases from each other (start and end of a phase).

Project phases:

Project phases within the course of a project depend on the field of industry or project type.

RASCI matrix:

The RASCI matrix is used to specifically allocate responsibilities to roles in project management.

Its significance is defined as follows in a project management system:

R = Responsible	A = Accountable	S = Supportive	C = Consulted	I = Informed
Person who is responsible and initiates the implementation of an activity or who performs this activity himself or herself.	Person who is accountable in a legal or commercial sense and who makes appropriate decisions.	Person who supports responsible persons in an activity by contributing work or providing operating resources.	Person who provides advice about a task to be performed.	Person who is notified about the course or results of an activity.

3. Responsibilities

The project management system should be set up and managed by a specifically appointed organisational unit. This unit ensures that the overall system is consistent. A process manager who is responsible for the process contents should be appointed for each process. It is this person's duty to provide the necessary level of process detail, the contents of the processes and the required documents (e.g. templates and tools), to ensure that they are continuously up-to-date and to include findings for the purpose of continuous refinement. In this connection, the process manager is supported by the nominated organisational unit.

4. Description

The project management system should be realised as an integral part of the Organisation Manual and its application is thus mandatory. This also includes requirements which focus on linear management activities but which are also to be applied from the point of view of project management. In contrast to linear management activities, projects are unique in character. It is therefore important to specify precisely for each individual project just how the relevant requirements are to be implemented. This is done by compiling and releasing a separate project manual for each project.

Project phases:

The project management system should be defined by a phase model. The usual project phases are separated by intermediate results (milestones). This stage gate model enhances transparency and improves project management possibilities of taking action.

The relevant phases may be as follows:

- pre-development
- development
- execution
- operation

The pre-development, development, execution and operation phases are higher-level phases comprising several project phases. The development phase (pre-development and development) comprises the pre-screening, screening, conceptual design, basic engineering, specification and tendering phases. When the main components have been tendered and the Gate 2 process has finished, this development phase can also come to an end.

Release by the Gate 2 process is followed by the execution phase which comprises the detailed engineering, fabrication & construction and commissioning phases. For a more detailed description of the stage gate model, supplementary instructions, e.g. front-end loading and cost engineering, can be applied.

From the point of view of project management, separate initiation, execution planning, monitoring and control as well as close-out (referred to in PMI as “project management process groups”) have to be performed for each project phase. Frequently, these project management process groups are performed more than once within a phase.

5. Project processes and organization

Within the project management system, project processes are distinguished between organisational processes (“project management processes”) and technical processes.

Based on PMI, project management processes are as follows:

- integration management
- scope management
- time management
- cost management
- risk management
- project quality management
- human resources and organisation management
- communication management

Core processes could include the following for example:

- engineering
- procurement and contract management
- SHE management
- site management
- commissioning management
- permitting and regulation management

In the project management system, each process is described on three levels. On the first level, all project management and core processes are listed in the overview.

The second level shows the subprocesses which are subordinated to the respective process.

The third level (subprocess step level) describes the activities allocated to the subprocess. The description includes input / output, responsibilities in line with RASCI, tools / templates, interfaces, and other relevant instructions. Here again, a distinction is made between the different project types, categories and technologies.

In the description of the process steps, the focus is on the question of what has to be done (based on project experience), whereas the allocated instructions show in depth how it has to be done (based on linear management experience).

A temporary project organisation is set up for each project. The internal project client appoints a project manager who then sets up the necessary project team and continuously adjusts it to the project's current requirements. The Project Management Division must be consulted by way of support and has to approve both the form of project organisation and the planned organisation chart.

It is important that, together with the project organisation, clear-cut tasks, responsibilities and competences are defined for project execution. In particular, cooperation with line management units is important. Responsibilities are allocated by means of the RASCI system.

Another aspect for set-up of the project organisation is the need to adjust existing skills to the necessary competence for the project task (e.g. in line with the project category).

6. Conclusion

The introduction of a project management standard is not a universal remedy (2). In practice, there are a large number of advantages and disadvantages (see below). Despite these disadvantages, such a system offers an immense advantage for the purpose of standardising processes within a company and offering staff an important knowledge database.

Advantages:

- creation of a company-wide standard basis
- faster response to market changes
- set-up of project management
- establishment as a profession within a company
- assurance of company-internal communications

Disadvantages:

- frequent compilation of manuals which are not put into practice
- lack of visible recognition within the company
- frequently viewed by staff as being too formalistic
- high-level initial investment

7. References

[1] P PMBOK® Guide and Standards, 5th Edition 2013

[2] Lau, Carsten and other: Projektmanagement im Energiebereich, 1. Auflage: Wiesbaden 2013